SW90W FlukeView™ Software

for Windows™

Users Manual

FLUKE®

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SW90W FlukeView™ Software

for Windows™

Users Manual

for

ScopeMeter® test tools

960402
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FLUKE®

HOW TO USE THIS MANUAL

This user manual is intended to help you quickly begin to use the FlukeView™ software. The manual is divided into three parts:

PART I (Chapter 1)

The first part shows you how to install and start up the FlukeView software and how to connect the computer to an instrument via the serial interface.

PART II (Chapters 2 through 5)

The second part uses tutorials to show you how to get started with the main tools. The tutorials contain step by step actions (one tutorial per chapter).

PART III (Appendixes)

The third part contains explanations and gives background information about specific subjects. Each appendix explains a specific subject.

Detailed reference information is given in the on-line Help function in the FlukeView software. See section 1.6 Using Help for information.

In the manual it is presumed that you work with a mouse.
For information on using the keyboard, see the USING THE KEYBOARD section in Appendix A.

A full alphabetical INDEX is given at the end of the manual.

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1 GETTING STARTED

1.1 Installing the FlukeView Software

- First make a backup copy of the original floppy disk as follows :
  - Insert the original disk in the appropriate disk drive, e.g. A:
  - Type: ***DISKCOPY A: A:***
    and press: ***Enter***
  - Follow the instructions on the screen.
- Store the original floppy disk in a safe place.

You must use the FlukeView **Setup** program to install the FlukeView software.

Install the SW90W FlukeView™ software on your hard disk as follows:

1. Insert the floppy disk into the appropriate disk drive, e.g., A:.

2a. For Windows 95:
- Select ***Start - Run*** from the desktop
- Type **A:\SETUP.EXE**
- Click on ***OK***

2b. For Windows 3.1:
- Select ***File - Run*** from the Program or File Manager
- Type **A:\SETUP.EXE**
- Click on ***OK***

2c. For DOS:
- Type **A:**
- Press **Enter**
- Type **SETUP**
- Press **Enter**

3. If you are installing FlukeView for the first time, follow the steps below.
   If you have installed FlukeView before and you are reinstalling it now, follow the instructions on your computer screen.

   The Setup program asks you if you want to install FlukeView in the ***C:\FV90*** directory.

   If you want, you can change the directory by typing a new name.

4. Click on the ***OK*** button to continue.

   If the ***C:\FV90*** does not exist on your hard disk, the Setup program will ask you for permission to create the directory.

5. Click on the ***Yes*** button to continue.

   All FlukeView files will now be copied to your hard disk.
   To prepare Windows for FlukeView, the Setup program asks you whether it should add icons to the Program Manager.

6. Click on the ***Yes*** button to continue.

   If you want, you can change the name of the Program Group for FlukeView.

7. Click on the **OK** button to continue.

   Finally, the Setup program asks you if you want to read **README.TXT** now. This file contains the latest information.

8. Click on the ***Yes*** button to continue.

   Use the Notepad text editor is used to show the README.TXT file on your screen. Use the mouse to move around in the file by means of the scroll bars.

   Tip: Select the ***File - Print*** menu command if you want to print the README.TXT.

   Select the ***File - Exit*** menu command to leave the Notepad text editor.

9. The FlukeView software is now completely installed and a program group is created called "FlukeView" or another name you may have provided during installation.

   Before you start FlukeView, first connect a ScopeMeter test tool to your Computer. Section 1.4 explains how to start FlukeView.

1.2 Connecting Your Instrument to the Computer

The FlukeView software can communicate with your instrument when you have connected a COM port in the computer to the instrument via the PM9080 Optically Isolated RS232 Adapter/Cable.

Note: A COM port is, for example, the 9- or 25-pin connector on a serial interface board.

1.3 Computers Supported

- FlukeView software supports the following computers:
  - IBM PC AT or 100% compatible models with microprocessor 80386 or higher, with Windows 3.1 or Windows 95 installed.

1.4 Starting Up

GOAL: Start the FlukeView progam to collect, save, and organize instrument screens, waveforms, or meter readings.

ACTIONS:

After you run Setup, a program group is created called "FlukeView" or another name you may have provided during installation. The FlukeView program group includes icons for the major components you installed. If you performed a complete installation, the program group includes the icons in the following illustration.

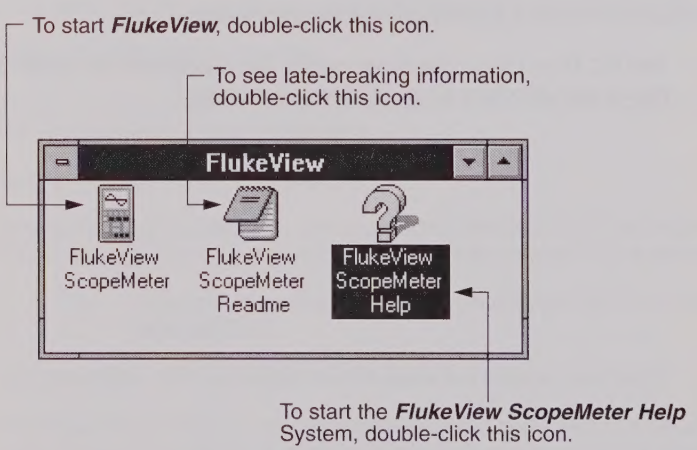

To start ***FlukeView***, double-click this icon.
To see late-breaking information, double-click this icon.
FlukeView
FlukeView ScopeMeter
FlukeView ScopeMeter Readme
FlukeView ScopeMeter Help
To start the ***FlukeView ScopeMeter Help*** System, double-click this icon.

Figure 1-1. The FlukeView Program Group (Windows 3.1)

Tip: If you want to start FlukeView each time you start Windows, move or copy the FlukeView program icon to the Startup Program group. For more information about starting programs automatically from within Windows, see your Windows documentation.

Double-click on the FlukeView Icon to start FlukeView.

During startup, the Instrument Connect dialog box pops up. This allows you to connect an instrument to the FlukeView software.

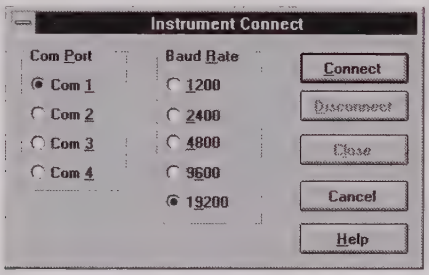


Figure 1-2. The Instrument Connect Dialog Box

ACTIONS:

Configure Interface

1. Select the COM port that connects the ScopeMeter to the PC from the **Com Port** option box.
   Note: Make sure that no mouse driver software is active on the COM port that you selected. If it is, select and connect another COM port.
   *Click on the **Help** button to get more help.*

2. Select one of the baud rates from the **Baud Rate** option box, e.g., 19200.
   Click on the ***Help*** button to get more help.
   Note: The baud rate selected may differ from the ScopeMeter test tool printing baud rate (1200 or 9600).

3. Turn on your ScopeMeter test tool.

Make Connection

4. Click on the ***Connect*** button to connect the instrument, which might take a few seconds.

RESULT:

If the connection and configuration settings were correct, the ScopeMeter test tool is configured, and the Instrument Connect dialog box disappears.

If the connection and configuration settings were not correct, a box pops up, indicating what might be wrong. Click on the ***Help*** button in the box to get additional help.

If you want more information, click on the ***Help*** button in the Connect Instrument dialog box to get more help.

The next step is to display an instrument screen, a waveform, or a meter reading. So, read the explanations in section 1.5 first, or continue with section 1.6.

1.5 Transferring Data

FlukeView is a software package that offers you simple mouse-controlled tools to transfer the following types of data from your ScopeMeter test tool:

Instrument Screens	Graphical data, such as waveforms, cursors, menus, text, as displayed on the screen of the instrument.
Waveforms	A waveform consists of a sequence of numerical time and amplitude values (waveform points).
Meter Readings	Numeric values, such as Voltage-AC-RMS, Voltage-DC, resistance that are measured by the ScopeMeter test tool.
Instrument Setups	A setup as stored in a ScopeMeter setup memory. A setup contains all instrument settings, such as time base, attenuation, input coupling, trigger mode.

With these data you can perform the following tasks:

Instrument Screens

Read	Reading the graphical data from your instrument screen.
Print	Printing the data on paper to get a hard copy of the instrument screen.
Document	Saving the data in graphics file format (PCX, BMP, or FVS) or to the clipboard and using a wordprocessor to insert the data.

Waveforms

Read	Reading a waveform from your instrument. If you wish, add a description, use the readout cursors, or zoom in on a waveform.
Print	Printing waveforms on paper to get a hard copy.
Spectrum	Generating a spectrum (FFT) of a waveform.
Save	Saving waveforms to file (CUR) to restore later.
Spreadsheet	Saving waveforms in ASCII format (CSV) to enter into a spreadsheet program.
Document	Saving the Waveform in graphics file format (PCX or BMP) or to the clipboard and using a wordprocessor to insert the data.

Meter Readings

Graph	Graphing meter readings over a long period of time at certain interval times (Meter logging).
Print	Printing graphed meter readings on paper to get a hard copy.
Save	Saving graphed meter readings to file (CUR) to restore later.
Spreadsheet	Saving meter readings in ASCII format (CSV) to enter into a spreadsheet program.
Document	Saving the meter readings in graphics file format (PCX or BMP) or to the clipboard and using a wordprocessor to insert the data.

Instrument Setups

Load	Restoring an instrument setup from file (SET) to an instrument setup memory.
Save	Saving an instrument setup from an instrument setup memory to file (SET).

1.6 Using Help

FlukeView includes comprehensive online help. You can access the Help system from the ***Help*** menu. Context sensitive help is also available by pressing **F1** at any time, or by clicking the ***Help*** buttons in dialog boxes. Help for each toolbar button is available by clicking on the toolbar and pressing **F1**.

For detailed information on using help, choose ***How to use Help*** from the Help menu or see Appendix B.

2 INSTRUMENT SCREENS

You can do the following with the graphical data on the screen of your ScopeMeter test tool:

- Read and display it (see section 2.1).
- Change the size of the Instrument Screen (see section 2.2)
- Print it (see section 2.3).
- Save it to file (see section 2.4).
- Use a wordprocessor to insert it into a document (see section 2.5).

2.1 Reading Instrument Screens

GOAL: To read the graphical data from the ScopeMeter screen into the computer.

ACTIONS:

1. Click on the ***Display Instrument Screen*** button on the toolbar to read the instrument screen from the ScopeMeter test tool.

Add Description

2. Select ***Options - Add Description*** or press **Ctrl + D**. Add your description in the text box that appears below the ScopeMeter screen.

   Note: A text box may consist of maximum 10 lines.

   Tip: Press **Enter** to move to the next text line.

Change Title

3. Select ***Options - Title Bar*** or press **Ctrl + T** to change the title of the screen window.

   *Notes: - **%s** substitutes the source screen name.*
   *- **%d** substitutes the screen date.*
   *- **%t** substitutes the screen time.*

   Example: '%s %d %t' gives the default 'name date time' title.

   Tip: To change screen colors, select ***Options - Colors***.

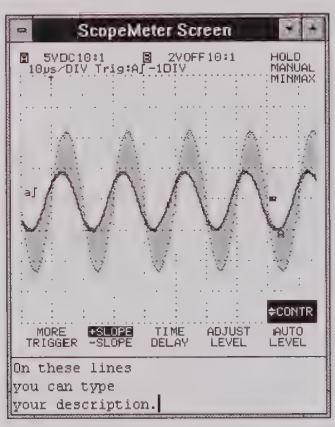


Figure 2-1. An Instrument Screen Example

RESULT: The ScopeMeter screen is displayed.

More Screens

Tip: To read more ScopeMeter screens, do as follows:

1. Select ***Display - Mode***. When the Display Mode dialog box pops up, select the Screen Display Mode page.
2. Select ***Create new window*** to create a new screen in a new window.
3. Select ***Continuous*** to read ScopeMeter screens repeatedly.
4. Click on the ***Start*** button to start reading ScopeMeter screens.

5. To stop reading, click on the ***STOP*** toolbar button or press **Esc**.

2.2 Changing the Size of an Instrument Screen Window

GOAL: When you work with FlukeView, you often have a number of windows on the screen. You may want to change the size of these windows or move them over your PC screen.

ACTIONS:

1. If you wish, read a new instrument screen (see section 2.1).

2. Click on the instrument screen window you want to change.

   Note: If you reduced the instrument screen window to an icon, double click the icon to restore the window.

Change Size

3. To change the size of a window, point to a border or corner of the window, so that the pointer changes to a two-headed arrow. Then press the left mouse button and drag the corner or border until the window has the size you want. Finally, release the left mouse button.

   As you can see, the instrument screen can be resized. However, the screen proportions will be maintained.

   Tip: Select the ***Window - Default Size*** menu command to return the selected window to default size.

Move Window

4. To move a window across the PC screen, point to its title bar. Then press the left mouse button and drag the window to the position you want. Finally, release the left mouse button.

   Tip: Select one of the ***Window - Tile Horizontal, - Tile Vertical, or - Cascade*** menu commands to tile all windows horizontally, vertically, or in cascade.

RESULT: The instrument screen window is resized and/or moved to another place on the PC screen.

2.3 Printing Instrument Screens

GOAL: To print the ScopeMeter screen on a printer. This allows you to make printouts on printers with a parallel interface, on network printers, or on printers that are not supported by means of a direct printout from the ScopeMeter test tool.

ACTIONS:

1. If you wish, read a new instrument screen (see section 2.1).
2. Click on the instrument screen you want to print.

3. Click on the ***Print Preview*** button on the toolbar to make sure that it will be printed the way you want it.

   To change the size or location of the Instrument screen:

Change Size

- Drag one of the sizing handles on the sides or corners of the instrument screen until the outline of the rectangle has the desired size. Release the mouse button and the instrument screen will be painted in the new location.

Move Instrument Screen

- Move the cursor anywhere inside the border of the Instrument Screen and drag the rectangle to a new location. Release the mouse button and the instrument screen will be painted in the new location.

Tips:
- Make ***Border*** active to print a box around the screen.
- Make ***Title Bar*** active to print the screen title.
- Click on the ***Insert*** button to print more screens on one page.

4. Click on the ***Print*** button.

RESULT: The printer will start printing the instrument screen window.

2.4 Saving Instrument Screens to File

2.4.1 Saving One Instrument Screen

GOAL: To save the ScopeMeter screen to a graphics file that can be inserted into a document by using a word processor.

ACTIONS:

1. If you wish, read a new instrument screen (see section 2.1).
   *Note: Select **Options - Colors...** to change the background and foreground colors of the instrument screen window.*

2. Click on the ***Save to File*** button on the toolbar.
   Enter a name for the BMP file into the ***File Name*** box, e.g., MYNAME.

3. Click on the ***OK*** button to create the file. The extension .BMP is added automatically.

RESULT: The instrument screen is saved into the file MYNAME.BMP.

2.4.2 Saving Multiple Instrument Screens

GOAL: To save several ScopeMeter screens to one file, so that you can open the file and restore the saved screens at a later time.

ACTIONS:

1. If you wish, read new instrument screens (see section 2.1).

2. Click on the ***Save to File*** button on the toolbar. If there are more screen windows, the Window Selection dialog box pops up.

3. Select the screens you want to save and click on the ***Save*** button. As a result, the File Save Instrument Screen dialog box pops up.

4. Enter a name for the FVS file in the ***File Name*** box, e.g., SCREENS.

5. Click on the ***OK*** button to create the file. The extension .FVS is added automatically.

RESULT: The screens are saved in the file SCREENS.FVS.

2.5 Inserting Instrument Screen into Text Document

GOAL: To insert an instrument screen into a document by using a wordprocessor for Windows.

ACTIONS:

1. If you wish, read a new instrument screen (see section 2.1).

2. Click on the ***Copy Graphics to Clipboard*** button on the toolbar to copy the screen to the Clipboard.

3. To insert instrument screeln windows into a wordprocessor for Windows, continue as follows:

Switch to Wordprocessor

4. Switch to a wordprocessor without closing FlukeView.

   Tip: Use ***Alt + Tab*** to switch between Window applications.

5. Open or create the document into which the instrument screen picture must be inserted. Place the cursor where you want to insert the instrument screen window.

6. Select ***Edit - Paste*** to insert the instrument screen window.

Save Document

7. Save your document before you switch back to the FlukeView software.

RESULT: The picture on your ScopeMeter screen is now integrated in your document. You can repeat this for more instrument screen windows or you can print the document including the instrument screen window.

3 WAVEFORMS

You can do the following with waveforms that are stored or measured from your ScopeMeter test tool:

- Read and display them (see section 3.1).
- Changing their window size (see section 3.2)
- Print them (see section 3.3).
- Save them to file (see section 3.4).
- Use them for Fast Fourier Transformations (see section 3.5).
- Transfer them to other applications (see section 3.6 and 3.7).

3.1 Reading Waveforms

GOAL: To read waveforms from the ScopeMeter test tool into the computer.

ACTIONS:

1. To make a selection of the inputs and memories that are saved in your ScopeMeter test tool memory, click on the toolbar ***Display Waveform(s)*** button. The Waveform Input and Memory Selection dialog box pops up.
   - Point to the Inputs and Memories you want to select and then click the left mouse button.
   - Click on the ***Start*** button to start reading waveform(s).

   Tip: Click on the ***Display Waveform A*** button on the toolbar to read from INPUT A of the ScopeMeter test tool.

Add Description

2. Select ***Options - Add Description*** or press **Ctrl + D**. Add your description in the text box that appears below the Waveform.

   Note: A text box may consist of maximum 10 lines.

   Tip: Press **Enter** to move to the next text line.

Change Title

3. Select ***Options - Title Bar*** or press **Ctrl + T** to change the title of the waveform window.

   Notes: - ***%s*** *substitutes the source waveform name.*
   - ***%d*** *substitutes the waveform date.*
   - ***%t*** *substitutes the waveform time.*

   Example: '%s %d %t' gives the default 'name date time' title.

   Tip: To change waveform colors, select ***Options - Colors***.

Change Waveform Display

4. To change the display of the waveform within the window, do the following:

   - Select ***Options - Scale***. As a result, the Options Waveform Scale dialog box pops up.
   - Select another time delay from the ***X At 0%*** box to view another part of the waveform (moves the waveform horizontally).
   - Select another time scale from the ***X Scale*** box to view a bigger or smaller part of the waveform (magnifies the waveform horizontally).
   - Select another Y value from the ***Y At 50%*** box to move the waveform vertically in the window.
   - Select another Y scale form the ***Y Scale*** box to increase or decrease the size of the waveform vertically.

   Notes: - *Click on the* ***Default*** *button to restore X or Y to its original value.*
   - *Click on the* ***All Points*** *button to display all waveform points.*

Show Datablock

5. Select ***Options - Show Datablock*** or press **Ctrl + B**. The width of the active waveform will be adjusted.

   Note: All other waveforms that you will read from the ScopeMeter test tool will be shown with the Datablock until you deactivate it.

RESULT: The waveforms are displayed on the PC screen. Each waveform in a separate window.

Note: If the waveform is not completely shown in the window, a scroll bar is displayed. Use this scroll bar to view other parts of the waveform.

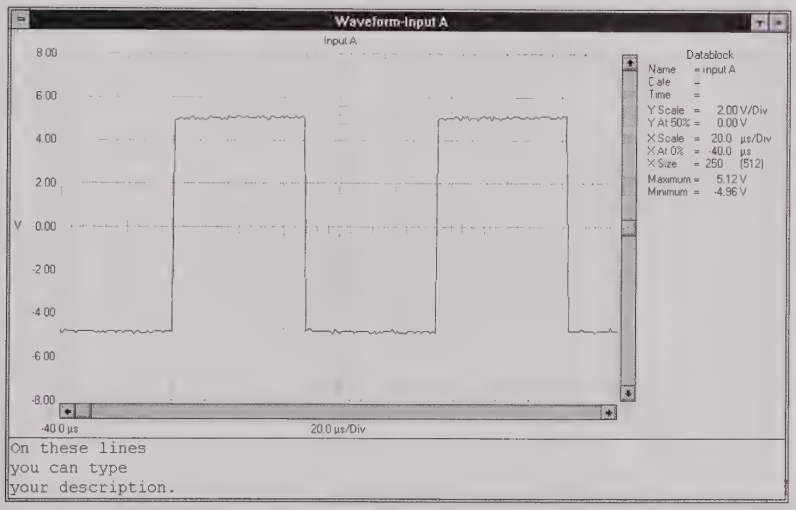


Figure 3-1. Example of a Waveform Window

Tips:
- To use cursors on a waveform and to read X and Y cursor values, select ***Options - Show Cursors*** or press **Ctrl + U**.
- To zoom in on a part of a waveform, select ***Options - Zoom In*** or press **Ctrl + U**.

The waveform window displays the waveform that is selected.
The waveform dimensions are shown next to the waveform.

DIMENSIONS		FORMATS
Name	: Name of waveform	ASCII text
Date	: Date of the waveform	month-day-year
Time	: Time of waveform	hours:minutes:seconds
Y Scale	: Vertical scale	Unit/Division
Y At 50%	: Vertical position	Unit
X Scale	: Horizontal scale	Unit/Division
X At 0%	: Horizontal position	Unit
X Size	: Shown [total] number of waveform points	Decimal numbers
Maximum	: Maximum value	Unit
Minimum	: Minimum value	Unit

Note: The Date and Time formats depend on the Windows International (Windows 3.1) or Regional (Windows 95) settings.

3.2 Changing the Size of a Waveform Window

GOAL: When you work with FlukeView, you often have a number of windows on your screen. You may want to change the size of these windows or move them over to your PCscreen.

ACTIONS:

1. If you wish, read new waveforms (see section 3.1).
2. Click on the waveform window you want to change.

   Note: If you reduced the waveform window to an icon before, double click the icon to restore the window.

Change Size

3. To change the size of a window, point to a border or corner of the window, so that the pointer changes to a two-headed arrow. Then press the left mouse button and drag the corner or border until the window has the size you want. Finally, release the left mouse button.

   Tip: Select the ***Window - Default Size*** menu command to return the selected window to default size.

Move Window

4. To move a window across the PC screen, point to its title bar. Then press the left mouse button and drag the window to the position you want. Finally, release the left mouse button.

   Tip: Select one of the ***Window - Tile Horizontal, - Tile Vertical, or - Cascade*** menu commands to tile all windows horizontally, vertically, or in cascade.

RESULT: The waveform window is resized and/or moved to another place on the PC screen.

3.3 Printing Waveforms

GOAL: To print waveforms on a printer.

ACTIONS:

1. If you wish, read new waveforms (see section 3.1).

Select Waveform

2. Click on the waveform window you want to print.

3. Click on the ***Print Preview*** button on the toolbar to make sure that it will be printed the way you want it.

Change Size

4. To change the size or location of the Waveform, drag one of the sizing handles on the sides or corners of the waveform until the shaded rectangle has the desired size. Release the mouse button and the waveform will be painted in the new location.

Move Waveform

5. To move the waveform, move the cursor anywhere inside the border of the waveform and drag the rectangle to a new location. Release the mouse button and the waveform will be painted in the new location.

Tips:
- Make ***Border*** active to print a box around the waveform.
- Make ***Title Bar*** active to print the waveform title.
- Click on the ***Insert*** button to print more waveforms on one page.

6. Click on the ***Print*** button.

RESULT: The printer will start printing the waveform window.

3.4 Saving Waveforms to File

GOAL: To save the ScopeMeter test tool waveforms for later use.

ACTIONS:

1. If you wish, read new waveforms (see section 3.1).

2. Click on the ***Save to File*** button on the toolbar.
   If you have more than one Waveform window, the Window Selection dialog box pops up.
   - Click on the Waveform of your choice or click on the ***All*** button to save all waveforms shown.

   Note: If you select more than one waveform, you can only choose between the .CSV and .CUR file format. If you want to save a waveform in graphics .BMP or .PCX file format, select only one waveform.

   - Click on the ***Save*** button and the File Save Waveform dialog box pops up.
   - Enter a name for the CUR file into the ***File Name*** field, e.g., MYNAME.
3. Click on the ***OK*** button to create the file. The extension .CUR (curve) is added automatically.

RESULT: The waveforms are saved into the file MYNAME.CUR.

Note: See Appendix D for the meaning and possible use of file data formats.

3.5 Generating a Spectrum of a Waveform

GOAL: To determine the frequency components of the selected waveform.

ACTIONS:

1. If you wish, read new waveforms (see section 3.1).

Select Waveform

2. Click on the waveform window from which you want to generate a spectrum.

Select Spectrum Function

3. Select the ***Options*** menu.

4. Select the ***Spectrum*** command.

   Note: Make sure you have at least 1.5 waveform period in your Waveform window.

   As a result, the Spectrum window is displayed.

Add Description

5. Select ***Options - Add Description*** or press **Ctrl + D**. Add your description in the text box that appears below the Spectrum.

   Note: A text box may consist of maximum 10 lines.

   Tip: Press **Enter** to move to the next text line.

Change Title

6. Select ***Options - Title Bar*** or press **Ctrl + T** to change the title of the spectrum window.

   *Notes: - **%s** substitutes the source spectrum name.*
   *- **%d** substitutes the spectrum date.*
   *- **%t** substitutes the spectrum time.*

   Example: '%s %d %t' gives the default 'name date time' title.

   Tip: To change spectrum colors, select ***Options - Colors***.

Change Harmonics

7. Select ***Options - Scale***. As a result, the Options Spectrum Scale dialog box pops up.

   - Choose one of the following spectrum types:
     - **Percentage** (percentage of the fundamental frequency amplitude)
     - **RMS** (RMS spectrum)
     - **Amplitude** (amplitude spectrum)
     - **Logarithmic** (logarithmic spectrum)
   - Choose to display the **Frequency** values or the frequency **Numbers** below the X axis.
   - Choose to display one of the following:
     - **All frequency components**
     - **Only harmonics** (over all periods)
       Specify the **Fundamental Frequency** from which other harmonics are derived.
   - Specify the **Number of displayed frequencies**.

   Notice that the active spectrum is adjusted when you change a scale value.

   - Click on the ***OK*** button to close the dialog box.

Show Datablock

8. Select ***Options - Show Datablock*** or press **Ctrl + B**. The width of the active spectrum will be adjusted.

   Note: All new spectrums that you create will be shown with the new scale values.

RESULT:

The calculated spectrum of the original selected waveform is displayed. Notice that the original waveform and calculated spectrum have different axes.

Tip: A spectrum is automatically coupled to its original waveform. So, when the waveform changes, the corresponding spectrum changes. You can use this to get a continuous update of a waveform spectrum, by selecting:

1. ***Display - Mode***
2. ***Waveform display mode***
3. ***Continuous updates***
4. ***Overwrite existing window***

The waveform and spectrum are updated continuously.

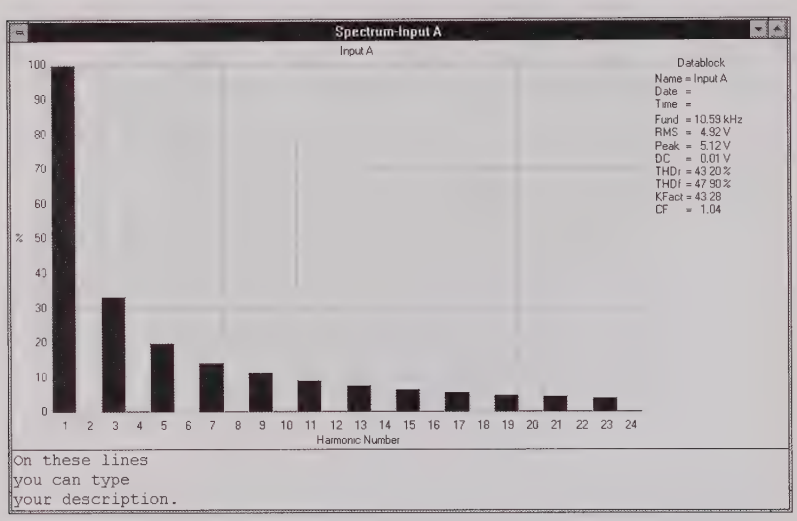


Figure 3-2. Example of a Spectrum Window

The Spectrum window shows the transformed waveform with the following dimensions in the datablock:

DIMENSIONS	FORMATS
Name : Name of the spectrum	ASCII text
Date : Date of the waveform	month-day-year
Time : Time of the waveform	hours:minutes:seconds
Fund : Fundamental Frequency	Hz
RMS : Root Mean Square	Volt
Peak : Maximum Voltage	Volt
DC : Direct Current voltage	Volt
THDr : Total Harmonic Distortion	against RMS
THDf : Total Harmonic Distortion	against fundamental frequency
KFact : K-factor	Decimal number
CF : Crest factor (Peak/RMS)	Decimal number

Note: The Date and Time formats depend on the Windows International (Windows 3.1) or Regional (Windows 95) settings.

3.6 Inserting Waveforms into Text Document

GOAL: To insert waveforms into a document for use in wordprocessors.

ACTIONS:

1. If you wish, read new waveforms (see section 3.1).

2. Click on the ***Copy Graphics to Clipboard*** button on the toolbar to copy the waveform to the Clipboard.

3. To insert waveform windows into a wordprocessor for Windows, continue as follows:

Switch to Wordprocessor

4. Switch to a wordprocessor without closing FlukeView.

   Tip: Use ***Alt*** + ***Tab*** to switch between Window applications.

5. Open or create the document into which the waveform window must be inserted. Place the cursor where you want to insert the waveform window.

6. Select ***Edit - Paste*** to insert the waveform window.

Save Document

7. Save your document before you switch back to the FlukeView software.

RESULT: The waveform is now integrated in your document. You can repeat this for more waveform windows or you can print the document including the waveform window.

3.7 Inserting Waveforms into Spreadsheet

GOAL: To save waveforms as numerical values for use in spreadsheet programs.

ACTIONS:

1. If you wish, read new waveforms (see section 3.1).

   To use the waveform in a spreadsheet, the waveform data need to be saved as numerical values. With the ***Copy Data*** command, the data is saved in CSV (Comma Separated Value) format to the clipboard.

Copy Data

2. Select the ***Edit*** menu.
3. Select the ***Copy Data*** command to copy the waveform data to the clipboard.

   Note:
   - *With **Edit - Copy Data** you copy the data as numbers and text.*
   - *With **Edit - Copy Graphics** or the toolbar button , you copy the data as graphical data.*

4. To insert waveform data in a spreadsheet for Windows, continue as follows:

Switch to Spreadsheet

5. Switch to a spreadsheet program without closing FlukeView.

   Tip: Use ***Alt*** + ***Tab*** to switch between Window applications.

6. Open or create the worksheet into which the waveforms data must be inserted. Place the cursor where you want to insert the waveform data.
7. Select the ***Edit - Paste*** menu command to insert the waveform data.

Save WorkSheet

8. Save your worksheet before you switch back to the FlukeView software.

RESULT: In a Spreadsheet, a worksheet has been created with the numerical data arranged in columns.

4 METER READINGS

Your ScopeMeter test tool can measure different values of a signal via its input channels, such as AC-RMS voltage, resistance. The FlukeView software allows you to graph these values over a long period of time (Meter Logging).

You can do the following with meter readings from your ScopeMeter test tool:

- Read and graph them (see section 4.1).
- Print them (see section 4.2).
- Save them to file (see section 4.3).
- Transfer them to other applications (see section 4.4 and 4.5).

4.1 Graphing Meter Readings

GOAL: To graph the selected meter readings over a period of time (Meter Logging). Before starting, put the ScopeMeter test tool in the Meter mode and make your meter selections manually using the ScopeMeter front panel.

ACTIONS:

Note: By default, meter logging is done continuously. You can verify or set the default selection in the following way:
- *Select **Display - Mode***
- *Choose **Meter Logging display mode***
- *Select **Continuous Logging***

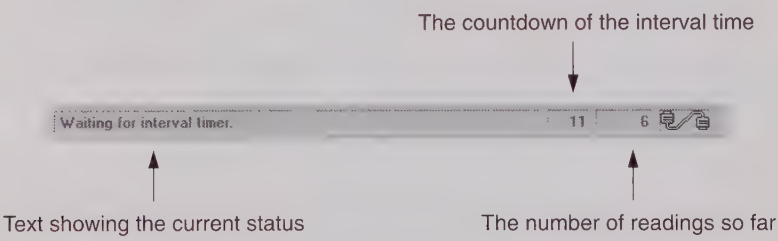
*Tip: You can also specify the Number of **Meter Readings to Log** or the **Interval time between Meter Readings**.*

Select Meter Readings

1. Click on ***Display Meter Logging*** from the toolbar. As a result, the Meter Logging Selection dialog box pops up.
2. Select the type of Meter Readings you want to graph. Notice that each selected type is graphed in a separate window.
3. Click on the ***Start*** button.

RESULT: After a few seconds, the selected meter readings are graphed in separate windows. Every x seconds the graph of the selected meter reading is updated. Notice that all menu commands are now disabled.

Note: The status bar shows the logging progress as follows:



4. To stop graphing, click on ***STOP*** from the toolbar. All menu commands are enabled again.

RESULT: Your PC screen shows a graph in a separate window for each type of meter readings.

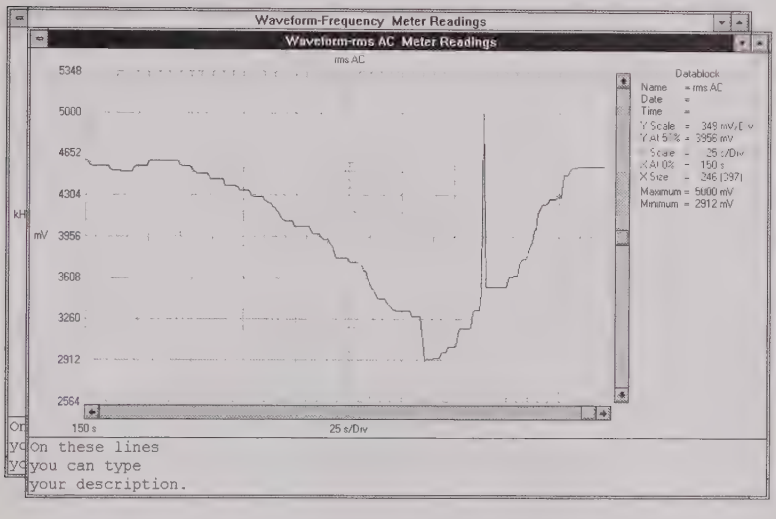


Figure 4-1. Example of two Windows with Meter Readings

Tips:

- To add a Description or change the window Title, select ***Options - Add Description*** or ***Options - Title Bar***.

- To show waveform data of the graphed meter readings, select ***Options - Show Datablock***.

- To use cursors on the graphed meter readings and to read X and Y cursor values, select ***Options - Show Cursors***.

- To zoom in on part of the graphed meter readings, select ***Options - Zoom In***.

4.2 Printing Meter Readings

GOAL: To print graphed meter readings as a waveform on a printer.

ACTIONS:

1. If you wish, read new meter readings (see section 4.1).

Select Meter Readings

2. Click on the waveform window you want to print.

3. Click on the **Print Preview** button on the toolbar to make sure that it will be printed the way you want it.

Change Size

4. To change the size or location of the Waveform, drag one of the sizing handles on the sides or corners of the waveform until the shaded rectangle has the desired size. Release the mouse button and the waveform will be painted in the new location.

Move Waveform

5. To move the waveform, move the cursor anywhere inside the border of the waveform and drag the rectangle to a new location. Release the mouse button and the waveform will be painted in the new location.

Tips:
- Make ***Border*** active to print a box around the waveform.
- Make ***Title Bar*** active to print the waveform title.
- Click on the ***Insert*** button to print more waveforms on one page.

6. Click on the ***Print*** button.

RESULT: The printer will start printing the waveform window.

4.3 Saving Meter Readings to File

GOAL: To save graphed meter readings as a waveform to a file.

ACTIONS:

1. If you wish, graph new meter readings,
   - Click on the ***Display Meter Logging*** button on the toolbar to log new meter readings. FlukeView starts graphing with the options you have set before.

   - To stop graphing, click on the ***STOP*** button on the toolbar.

2. Click on the ***Save to File*** button on the toolbar.
   If you have more than one Waveform window, the Window Selection dialog box pops up.
   - Click on the Waveform of your choice or click on the ***All*** button to save all waveforms shown.

   Note: If you select more than one waveform, you can only choose between the .CSV and .CUR file format. If you want to save a waveform in graphics .BMP or .PCX file format, select only one waveform.

   - Click on the ***Save*** button and the File Save Waveform dialog box pops up.

   - Enter a name for the CUR file into the ***File Name*** field, e.g., MYNAME.

3. Click on the ***OK*** button to create the file. The extension .CUR (curve) is added automatically.

RESULT: All graphed meter readings are saved as waveforms into the file MYNAME.CUR.

Note: See Appendix D for the meaning and possible use of file data formats.

4.4 Inserting Meter Readings into Text Document

GOAL: To insert waveforms of meter readings into a document for use in wordprocessors.

ACTIONS:

1. If you wish, read new meter readings (see section 4.1).

2. Click on the ***Copy Graphics to Clipboard*** button on the toolbar to copy the waveform of the meter readings to the Clipboard.

3. To insert waveform windows in a wordprocessor for Windows, continue as follows:

Switch to Wordprocessor

4. Switch to a wordprocessor without closing FlukeView.

   Tip: Use ***Alt*** + ***Tab*** to switch between Window applications.

5. Open or create the document into which the waveform window must be inserted. Place the cursor where you want to insert the waveform window.

6. Select ***Edit - Paste*** to insert the waveform window.

Save Document

7. Save your document before you switch back to the FlukeView software.

RESULT: The waveform of meter readings is now integrated in your document. You can repeat this for more waveform windows or you can print the document including the waveform window.

4.5 Inserting Meter Readings into Spreadsheet

GOAL: To save meter readings as numerical values for use in spreadsheet programs.

ACTIONS:

1. If you wish, graph new meter readings (section 4.1)

   To use graphed meter readings in a spreadsheet, the data need to be saved as numerical values.

Copy Data

2. Select the ***Edit*** menu.
3. Select the ***Copy Data*** command to copy the meter readings data to the clipboard.

   Note:
   - *With **Edit - Copy Data** you copy the data as numbers and text.*
   - *With **Edit - Copy Graphics** or the toolbar button , you copy the data as graphical data.*

4. To insert meter readings in a spreadsheet for Windows, continue as follows:

Switch to Spreadsheet

5. Switch to a spreadsheet program without closing FlukeView.

   Tip: Use ***Alt*** + ***Tab*** to switch between Window applications.

6. Open or create the worksheet into which the meter readings must be inserted. Place the cursor where you want to insert the meter readings.
7. Select ***Edit - Paste*** to insert the meter readings.

Save WorkSheet

8. Save your worksheet before you switch back to the FlukeView software.

RESULT: In a Spreadsheet, a worksheet has been created with the numerical data arranged in columns.

5 INSTRUMENT SETUPS

You can save the active setup of your ScopeMeter test tool.
This can be used for a quick setup later.

You can do the following with the active setup of your ScopeMeter test tool:

- Save it to file (see section 5.1).
- Load it from file (see section 5.2).
- Save it to ScopeMeter Memory (see section 5.3).
- Recall it from ScopeMeter Memory (see section 5.4).

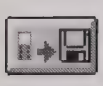
Note: The active setup is the active configuration of your ScopeMeter test tool.

5.1 Saving Setup to File

GOAL: Save the active ScopeMeter Setup to file. You can open this file later to set up your ScopeMeter test tool within a few seconds.

ACTIONS:

1. If you wish, make the Setup selections manually via the front panel of the ScopeMeter test tool (see your ScopeMeter manual).



2. Click on the ***Instrument Setup to File*** button on the toolbar. The Instrument Setup from Instrument to File dialog box pops up.

Enter File name

3. Enter a file name into the ***File Name*** field, e.g. MYSETUP. The extension .SET (setup) is added automatically.

4. Click on the ***OK*** button to create the file.

RESULT: The dialog box disappears and the active setup of the ScopeMeter test tool is now copied to a file.

5.2 Loading Setup from File

GOAL: To load a setup from file to the active ScopeMeter setup. You can use this to get a predefined ScopeMeter setup within a few seconds.

ACTIONS:

1. Click on the ***Instrument Setup from File*** button on the toolbar.
   The Instrument Setup from File to Instrument dialog box pops up.

Select File name

2. Click on the file name you want to open in the ***File Name*** field, e.g., MYSETUP.SET. The selected file will be highlighted.

   Attention: The active setup of your ScopeMeter test tool will be overwritten if you continue.

3. Click on the ***OK*** button to open the file to copy the contents of the Setup file (.SET) to the active ScopeMeter setup.

RESULT: The instrument setup from the file is now the active setup of your ScopeMeter test tool.

5.3 Saving Setup to a ScopeMeter Memory

GOAL: To copy the active ScopeMeter Setup to a ScopeMeter Setup Memory.

ACTIONS:

Open Instrument Control

1. Select the ***Instrument - Control...*** menu command.
   The Instrument Control dialog box pops up.
2. Click on the ***Save Setup*** button.
   The Save Memory Selection dialog box appears.

Select Memory

3. Click the down arrow to display the list with setup memories.
   Click the memory location in which you want to save the setup.
4. Click on the ***OK*** button to send the setup to the ScopeMeter memory location.
   The Save Memory Selection dialog box disappears.

RESULT: The instrument setup has now been saved into the instrument memory. By recalling the settings from one of the memories, you can quickly set up your ScopeMeter test tool with predefined settings.

Click on the ***Close*** button to close the dialog box.

5.4 Recalling Setup from a ScopeMeter Memory

GOAL: To recall a ScopeMeter Setup Memory to the active ScopeMeter Setup.

ACTIONS:

Open Instrument Control

1. Select the ***Instrument - Control...*** menu command.
   The Instrument Control dialog box pops up.
2. Click on the ***Recall Setup*** button.
   The Recall Memory Selection dialog box appears.

Select Memory

3. Click the down arrow to display the list with setup memories.
   Click the memory location that contains the setup you want to activate.
4. Click on the ***OK*** button to create the new actual setup.
   The Recall Memory Selection dialog box disappears.

RESULT: The selected setup has now been activated. By recalling the settings from one of the memories, you can quickly set up your ScopeMeter test tool with predefined settings.

Click on the ***Close*** button to close the dialog box.

Appendix A USING THE KEYBOARD

This appendix shows how you can use the FlukeView software with the keyboard. The Appendix lists shortcut key combinations you can use in the FlukeView software.

Using the keyboard is explained in the following three sections:

- Using Menu Commands (see section A.1)
- Using Dialog Box Controls (see section A.2)
- Using Application Window Controls (see section A.3)

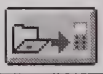
A.1 Using Menu Commands

Press Alt or F10 to make the menu bar active, then press the key corresponding to the underlined letter in the menu name. To choose a command, press the key for the underlined letter.

Example: To select the ***Display - Mode***, press the keyboard keys **Alt** + **D, O**.

You can select some commands by pressing the shortcut key listed on the menu to the right of the command.
The following shortcut keys (with corresponding toolbar buttons) can be used for the menus:

Shortcut Key	Menu Command	Toolbar Button
Ctrl + O	File - Open	
Ctrl + S	File - Save As	
Ctrl + P	File - Print	
Ctrl + C	Edit - Copy Graphics	
Ctrl + I	Display - Instrument Screen	

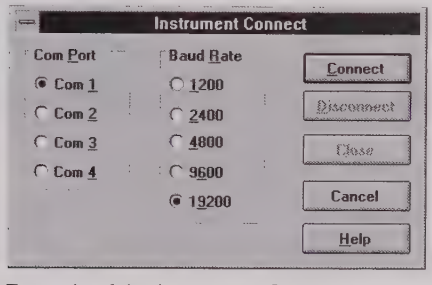
Shortcut Key	Menu Command	Toolbar Button
Ctrl + W	Display - Waveform	
Ctrl + M	Display - Meter Logging	
Ctrl + D	Options - Add Description	
Ctrl + T	Options - Title Bar	
Ctrl + U	Options - Show Cursors	
Ctrl + B	Options - Show Datablock	
Ctrl + Z	Options - Zoom In	
Ctrl + R	Options - Zoom Reset	
Shift + F4	Window - Tile Horizontal	
Shift + F6	Window - Tile Vertical	
Shift + F5	Window - Cascade	
Alt + letter	Selects the menu command with the underlined letter. E.g.: Alt+D+O displays the Display - Mode dialog box.	
Alt + I , T	Instrument - Setup to File	
Alt + I , F	Instrument - Setup from File	
Alt + F , V	File - Print Preview	
Esc		

Use the arrow (↑ ↓ → ←) keys to step through the menu commands.
If a command is dimmed, it is not currently available.
The [Enter] key activates a menu command.
To close a menu without choosing a command, press the [Esc] key.

A.2 Using Dialog box Controls

When you choose a command, often a dialog box appears to make you select options. If an option is dimmed, it is not available at the moment.

You can press the Tab or arrow keys to move the focus among controls within a dialog box. The control (e.g., button or header text) with the focus is generally surrounded with extra shading, a highlight, or a dotted border. As you move the focus, the shaded hints move with it.



Example of the Instrument Connect Dialog Box.

Use the following keys when working in a dialog box:

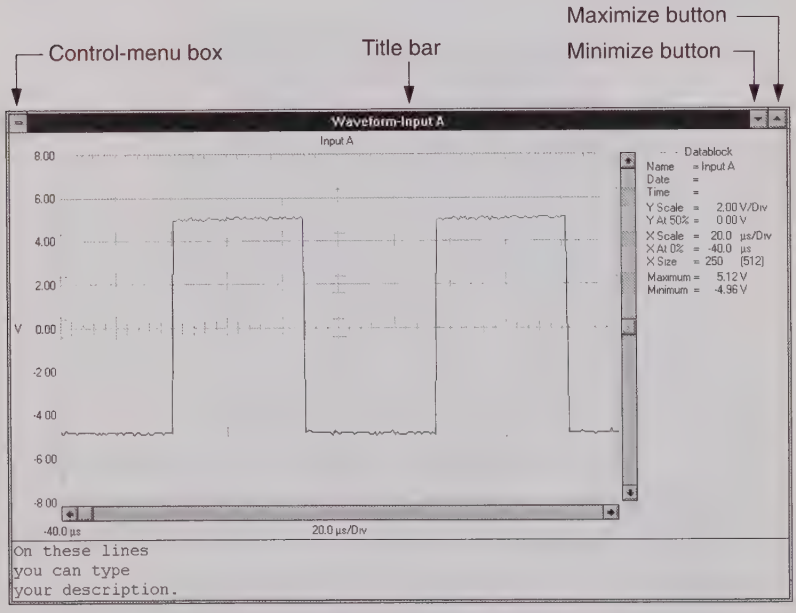
Press this Key:	**To:**
Tab	Move from option to option (left to right and top to bottom)
Shift + Tab	Move from option to option in reverse order.
Alt + Letter	Move to the option or group whose underlined letter matches the one you type.
An arrow key	Move the selection cursor from option to option within a group of options, or move the cursor left, right, up, or down within a list or text box.
Home	Move to the first item or character in a list or text box.
End	Move to the last item or character in a list or text box.
Alt + DOWN Arrow	Open a list.
SPACEBAR	Select an item or cancel a selection in a list. Select or clear a check box.
Enter	Carry out a command, or choose the selected item in a list, then carry out the command.
Esc or Alt + F4	Close a dialog box without completing the command.

For a complete list of key combinations and sequences you can use in dialog boxes, see your Windows documentation.

A.3 Using Application Window Controls

Each application window has a title bar and a control menu box.
The title bar shows the name of the application.
The control-menu box is in the upper-left corner of the window.

Instrument Screens, Waveforms, Meter Readings, and Spectrums are shown in application windows.



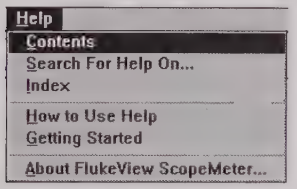
Example of a Waveform window (Windows 3.1)

Press [Alt + HYPHEN (-)] to open the Control menu.
To choose a command, see section A.1 Using Menu commands
Press [Alt] or [Esc] to close the Control menu without choosing a menu command.

Appendix B USING THE ONLINE HELP

FlukeView includes comprehensive online help, from which you can quickly look up information as follows:

- Click on the ***Help*** menu and click on one of the following Help commands:



Contents	Displays available Help subjects.
Search for Help On	Displays a dialog box for searching information about a specific topic.
Index	Shows an alphabetic list of topics.
How to Use Help	Shows information about how to use the Online Help for FlukeView.
Getting Started	Shows step-by-step instructions to get started with the FlukeView software.
About FlukeView ScopeMeter ...	Displays information about the FlukeView software and computer.

- Press **F1**, then choose a topic from the Help ***Contents*** or use the ***Search*** button to search for a topic.
- Click on the ***Help*** button that is available in all dialog boxes. This method gives you quick access to specific information about the dialog box.
- Use the keyboard to select a menu command, then press **F1** to see a description of the menu command.
- Select a dialog box option or button, then press **F1** or the ***Help*** button to move directly to an explanation of the option.

When you finish reading about a topic, you can choose one of the buttons along the top of the Help window.

Use this button:	**To:**
[Contents]	View the FlukeView Contents.
[Search]	Locate information about a topic (keyword or phrase) you select from a list or that you type in the Search For box.
[Back]	Return to previously viewed information. When you activate the Back button, you retrace your path through the Help topics you have already viewed.
[History]	View a complete, sequential list of every Help topic you have viewed during the current session.
[Index]	View an alphabetic list of topics.
[Print]	Print the current topic to the selected output device.
[Close]	Close the Help Window.

Appendix C CHANGING THE PRINTER SETUP

The software uses the default system printer when you activate the Print command. You can select only one default printer at a time. If you have several printers installed, use **Main - Print Manager** (Windows 3.1) or **Start - Settings - Printers** (Windows 95) to change the default printer.

To select a default printer:

1. Select ***File - Print Setup***.
   The Print Setup dialog box appears.
2. In the Printer box, select the ***Specific Printer*** option button.
3. Select the printer you want to use as the default printer.
4. Click on the ***OK*** button.

The selected printer is now configured as the default printer.

For more information about installing and configuring printers, see your Windows documentation.

The ***File - Print Setup...*** menu command allows you to change your printer setup. The printer you change to does not need to be physically connected to your computer. You can change to another printer just to format the output for that printer.

To change the printer options:

1. Select ***File - Print Setup***.
   The Print Setup dialog box appears.

2. In the Printer box, select the ***Default Printer*** option button.

3. Change the ***Orientation*** as needed.

4. Change the ***Paper*** as needed.
   - Specify the paper ***Size*** you are using. The default paper size depends on the country that is currently selected.
   - Specify the ***Source*** (tray or bin feeder) option if your printer uses single sheets of paper.

5. To set options specific to your printer driver, choose the ***Options*** button.
   Set the options as needed, then click on the ***OK*** button.

6. Click on the ***OK*** button in the Print Setup dialog box.

Appendix D DATA FORMATS

The following table lists the types of data that can be transferred and gives the formats of the various file types.

	FILE TYPE:						
DATA TYPE:	CUR	CSV	BMP	PCX	FVS	SET	
Instrument Screens			x	x	x		see D.1
Waveforms	x	x	x	x			see D.2
Meter Readings	x	x	x	x			see D.3
Spectrum		x	x	x			
Instrument Setups						x	see D.4

- **General file formats:**
  - CSV = Comma Separated Value data format (see D.5)
  - BMP = BITMAP data format
  - PCX = PC Paintbrush graphics data format (bit map)

- **FlukeView file formats:**
  - CUR = curve (waveform) data format
  - SET = setup data format
  - FVS = FlukeView multiple Screen format

D.1 Instrument Screen Data

Information (such as waveforms, cursors, menus, and text) is shown on the screen of the instrument. All the information together represents the graphical data of the instrument screen.

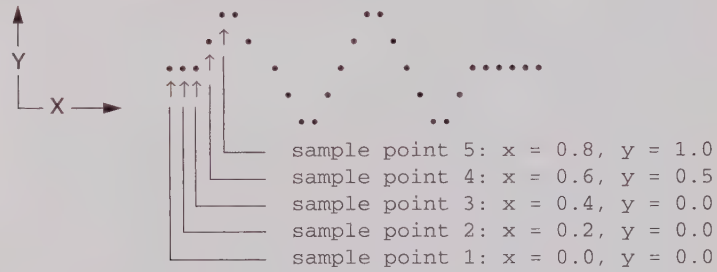
Instrument Screen Data Formats

- Instrument screens can be read from instruments as graphical printer data.
- Instrument screens can be saved and opened in the graphics file format (*.PCX; *.BMP; *.FVS).
- Instrument screens can be exported to word processors in the graphics file format (*.PCX; *.BMP).

D.2 Waveform Data

A waveform consists of data points. A waveform point is a sample of the signal measured. It is defined by a horizontal X-coordinate (time value) and a vertical Y-coordinate (amplitude value). A waveform is a sequence of data points as shown in the example:

Example of a single sine waveform:



Waveform Data Formats

- Waveforms can be read from instruments (internal format).
- Waveforms can be saved and opened in the waveform file format (*.CUR).
- Waveforms can be imported and exported to and from spreadsheet programs in the ASCII (Comma Separated Value) file format (*.CSV).
- One Waveform can be saved and opened in the graphics file format (*.BMP; *.PCX).

D.3 Meter Readings Data

Meter readings, such as voltage-AC-RMS, voltage-DC, voltage-diode, and resistance are values that are measured by the ScopeMeter test tool.

Meter Readings Data Formats

- Meter readings can be read from instruments.
- Meter readings can be saved and opened in the waveform file format (*.CUR).
- Meter readings can be imported and exported to and from spreadsheet programs in the ASCII (Comma Separated Value) file format (*.CSV).
- Meter Readings can be saved and opened in the graphics file format (*.PCX; *.BMP)

D.4 Instrument Setup Data

The complete setup of instrument settings, such as time base, attenuation, input coupling, and trigger mode can be read from an instrument.

Instrument Setup Data Formats

- Instrument Setups can be read and saved in the setup file format (*.SET).
- Instrument Setups can be recalled and saved in the ScopeMeter's active memory.

D.5 CSV Data Format

The CSV data file format (ASCII text) consists of the following:

- An optional Info Header
- One or more waveforms consisting of waveform point samples. A waveform point consists of one or more values separated by a value separator.

D.5.1 Info Header Data Format

An Info Header consists of ASCII Text in the following format:

HEADER TEXT EXAMPLE:		EXPLANATION:
"Title	"," Input A"	Name of the waveform
"ID	", 1	Waveform sequence number
"Type	"," Waveform"	Type of data
"Date	", 21-06-1996	Date = 21 June 1996
"Time	", 10:56:42	Time = 10 h + 56 m + 42 s
"X Scale	", 1.0000E-03	Second/division scale
"X At 0%	", 0.0000E+00	Delay time in seconds
"X Resolution	", 102.40E+00	Number of samples/division
"X Size	", 512	Number of waveform samples
"X Unit	"," s"	Horizontal unit (s, Hz)
"X Label	"," seconds"	Horizontal label text
"Y Scale	", 1.0000E+00	Unit/division scale

(to be continued on next page)

HEADER TEXT EXAMPLE:		EXPLANATION:
"Y At 50%	", 0.0000E+00	Vertical offset voltage
"Y Resolution	", 409.60E+00	Number of points/division
"Y Size	", 256 16384	Number of vertical points (8 bits) Number of vertical points (14 bits)
"Y Unit	"," V"	Vertical unit
"Y Label	"," Volts"	Vertical label text
"Description " " " "	"," First line" "," Second line" "," Third line"	Description of ten lines

Note: The Date and Time formats depend on the Windows International (Windows 3.1) or Regional (Windows 95) settings.

The order of the header elements is important because the FlukeView software reads the dimensions from the header and applies them for the waveform points to follow. In the example above, the X-scale of the waveform is set at 1 millisecond per division. When no header information is available, the following defaults apply for the waveform dimensions:

X Scale	(last - first) /10	[seconds/division]
X At 0%	first time value	[seconds]
X Resolution	X-size / 10	[points/division]
X Size	number of waveform points	[points]
Y Scale	(Maximum - Minimum) /10	[volts/division]
Y At 50%	(Maximum + Minimum) / 2	[volts]
Y Resolution	25 or 1600	[points/division]
Y Size	256 or 16384	[points]

Tip: If you want an example of the exact format of an Info Header in a CSV file, use the ***Edit- Copy Data*** menu command, switch to the Clipboard, and view its contents.

D.5.2 CSV Input File Format

A waveform in CSV format may consist of the following:

- waveform points of X and Y value.

SYNTAX:

<X> <val_sep> <Y>

<val_sep> Is detected from file or depends on the Windows selection.

<X> Signed or unsigned decimal, fraction, or floating-point number representing the X-axis value in seconds, e.g., 5.0E-6 = 5 µs. The delta-x value is calculated as follows:
dx = (last point - first point) / number of points

<Y> Signed or unsigned decimal, fraction, or floating-point number representing the Y-axis value in Volt, e.g., 125E-3 = 125 mV.

Example: 1.1,1.3 Waveform sample; X = 1.1s; Y = 1.3V.

Waveform points in a text file must be separated by a row separator, which can be CR (dec. 13), LF (dec. 10), or CR followed by LF.

In a text file with multiple waveforms, points of different waveforms are separated by an empty column.

Example: *<curve1_point> , , <curve2_point> CR*

D.5.3 CSV Output File Format

A waveform in CSV format consists of the following:

- waveform points of X and Y value.

SYNTAX:

<X> <val_sep> <Y>

<val_sep>	Depends on the Windows selection.
<X>	Signed floating-point number representing the X-axis value in seconds, e.g., 5.0E-6 = 5 µs.
<Y>	Signed floating-point number representing the Y-axis value in volts, e.g., 125E-3 = 125 mV.

Example: 1.1,1.3 Waveform sample; X = 1.1s; Y = 1.3V.

Waveform points of the same curve are separated by CR (dec. 13) followed by LF (dec. 10).

In a text file with multiple waveforms, points of different waveforms are separated by an empty column.
Example: *<curve1_point> , , <curve2_point> CR LF*

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